

SECTION 05300 - METAL DECKING

City of San Diego, CWP Guidelines

PART 1 -- GENERAL

1.1 WORK OF THIS SECTION

- A. The WORK of this Section includes providing all metal decking, accessories and complete appurtenant work.

1.2 RELATED SECTIONS

- A. The WORK of the following Sections applies to the WORK of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.

1. Section 05120 Structural Steel
2. Section 05500 Miscellaneous Metalwork
3. Section 07210 Building Insulation
4. Section 07510 Built-Up Roofing System
5. Section 07600 Flashing and Sheet Metal
6. Section 09800 Protective Coating

1.3 CODES

- A. The WORK of this Section shall comply with the current editions of the following codes as adopted by the City of San Diego Municipal Code:

- 1 Uniform Building Code

1.4 SPECIFICATIONS AND STANDARDS

- A. Except as otherwise indicated, the current editions of the following apply to the WORK of this Section:

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| 1. | ASTM A 446 | Specification for Steel Sheet, Zinc Coated (Galvanized) by Hot-Dip Process, Structural (Physical) Quality |
| 2. | ASTM A 525 | Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process |
| 3. | ASTM A 611 | Specification for Steel, Cold-Rolled Sheet, Carbon, Structural |
| 4. | AWS D1.3 | Specifications for Welding Sheet Steel in Structures |

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| 5. | AISI Structural Members | Specification for the Design of Cold-Formed Steel |
| 6. | AISC | Light Gauge Steel Design |
| 7. | ICBO | Research Report (on Metal Decks) |
| 8. | Steel Deck Institute | Design Manual for Composite Decks, Form Decks and Roof Decks |

1.5 SHOP DRAWINGS AND SAMPLES

- A. The following shall be submitted in compliance with Section 01300:
1. Deck manufacturer's affidavit certifying to the yield strength, design thickness, and section properties of the metal deck.
 2. Diaphragm shear values for the deck, supplied by the manufacturer, using the welding pattern and shear capacity indicated.
 3. Erection layout drawing showing the location of deck sheets, end laps, side laps, location and sizes of all openings, types and locations of welds.
 4. The location, type, size, spacing and sequence of the connections and the methods of fastening the decking and installing the accessories.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Steel decking shall be delivered, stored, handled, and installed in a manner to protect it from corrosion, deformation, and other damage. Special care shall be exercised not to damage the material or overload the deck during the entire construction period.
- B. The deck shall not be used as a working platform until the units have been welded in position and shall not be used for storage of materials without authorization by the CONSTRUCTION MANAGER. All damaged material shall be removed and restoration made with new material by the CONTRACTOR at no additional cost to the OWNER.

PART 2 -- PRODUCTS

2.1 STEEL DECK

- A. Unless noted on the drawings, all metal decking shall be manufactured from steel conforming to ASTM Designation A 611, Grades C, D, or E; or A 446, Grades A, B, C, D, E, or F, having a minimum yield strength of 33,000 psi. The maximum design working stress in the deck shall not exceed 0.6 times the yield strength.

- B. The metal decking structural properties shall be as indicated. These shall include minimum thickness of steel before coating, minimum depth of deck, minimum moment of inertia, and minimum section modulus. The moment of inertia and section modulus of the metal decking unit shall be computed in accordance with the Steel Deck Institute specifications, and in accordance with the American Iron and Steel Institute, "Specification for the Design of Cold-Formed Steel Structural Members."
- C. Galvanized steel decking shall comply with ASTM A 446 and the galvanizing shall conform to ASTM A 525 and the applicable requirements of Section 05500.
- D. Painted steel deck shall conform to ASTM A 611 and shall receive a shop coat of primer and shall be painted in accordance with the applicable requirements of Section 09800.
- E. The metal decking shall have sufficient sheet length to cover 3 or more spans of supports.
- F. The metal decking sheets shall be formed at the longitudinal sides in such a manner that they will overlap and interlock. Where the end of sheets overlap, they shall be die-formed in such a manner that the sheet in the next row telescopes and snugly overlaps the sheet laid previously.

PART 3 -- EXECUTION

3.1 INSTALLATION REQUIREMENTS

- A. The CONTRACTOR shall inspect supporting members for correct layout and alignment, and shall not proceed with installation until defects are corrected and supporting members are completely installed and secured.
- B. Metal deck sheets and accessories shall be placed in accordance with manufacturer's recommendations and shop drawings. Roofs having a slope of 1/4-inch per foot or more shall be erected starting at the lowside to ensure that end laps are shingle fashion.
- C. Metal deck sheets shall be positioned on supporting steel framework and adjusted to final position with ends bearing a minimum of 2 inches on supporting members. Units shall be placed end to end with all ribs aligned over entire length of run before being permanently fastened.
- D. Special care shall be exercised not to damage or overload the deck during installation. The deck shall not be used for storage or working platforms until permanently secured in position. Construction load shall not exceed deck carrying capacity.
- E. All openings in the deck shall be cut and fitted neatly and shall be reinforced with structural steel members to distribute the load.

- F. Edges of any cut openings or any minor surface damage areas shall be repaired in accordance with applicable requirements of Section 09800 and Section 05500.

3.2 WELDING

- G. Care shall be exercised in the selection of electrodes and an amperage to provide positive welds and to prevent high amperage blow holes. Welds shall be made from the top side of the deck immediately after alignment.
- H. The metal decking shall be welded to all supporting members with 1/2-inch effective diameter puddle welds spaced as indicated. Welding washers shall be used when welding steel decking of less than 0.028-inch thickness. Welding washers shall not be used when welding steel decking of 0.028 inches or greater.
- I. Side laps shall be welded with either 1/2-inch effective diameter puddle welds or 1-1/4-inch long seam welds, spaced as indicated.
- J. Any weld found to be defective shall be replaced.
- K. All welds shall be free of sharp points or edges. All welds shall be cleaned immediately by chipping or wire brushing and shall be coated with an organic zinc primer as recommended by the metal deck manufacturer.
- L. Welding shall conform to the applicable requirements of AISC "Light Gauge Steel design." Welders shall be AWS certified.

** END OF SECTION **